

METHOD AND APPARATUS OF GRADIENT ECHO IMAGING WITH ON-THE-FLY OPTIMIZATION OF TISSUE SUPPRESSION

Abstract

The present invention provides a system and method for on-the-fly optimization of the timing of suppression pulses and a k-space filling scheme for user-prescribed imaging parameters. The invention also minimizes total data acquisition time for the sequence tailored to the particular user-prescribed imaging parameters. A pulse sequence uses a 180° pulse to invert the magnetization corresponding to the suppressed tissue so that a maximum amount of time is provided to play out alpha or imaging pulses after each inversion. The pulse sequence optimizes the number of alpha pulses played out after each inversion pulse based on a specific protocol or imaging parameters selected by the user. This pulse sequence allows for a modified k-space filling scheme that places, at the center of k-space, the echo that most closely corresponds to the null point of the suppressed tissue. For the first inversion pulse, a flip angle less than 180° is used to drive the suppressed tissue magnetization into a steady-state condition imme-

diately.